ZooKeys 235: 23–39 (2012)
doi: 10.3897/zookeys.235.3306
www.zookeys.org

RESEARCH ARTICLE

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Revision of the *Lispe longicollis*-group (Diptera, Muscidae)

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Academic editor: *M. Hauser* | Received 29 April 2012 | Accepted 26 October 2012 | Published 31 October 2012

urn:lsid:zoobank.org:pub:E89C1914-6AC3-48DE-BF7C-F83778E1EF97

Citation: Vikhrev NE (2012) Revision of the *Lispe longicollis*-group (Diptera, Muscidae). ZooKeys 235: 23–39. doi: 10.3897/zookeys.235.3306

Abstract

The *Lispe longicollis* species-group is revised. *Lispe ethiopica* **sp. n.** is described. The following 3 new synonyms are established: *Lispe assimilis* Wiedemann, 1824 (syn: *cyrtoneurina* Stein, 1900 and *modesta* Stein, 1913); *Lispe manicata* Wiedemann, 1830 (syn: *forficata* Kurahashi & Shinonaga, 2009). Female of *Lispe microptera* Seguy, 1937 is described for the first time. Identification key for known Eurasian and African species is given.

Keywords

Lispe longicollis species-group, Muscidae, Diptera, key, new species, new synonym

Introduction

The *Lispe longicollis* species-group was proposed by Hennig (1960) based on the characteristic shape of a vein M which is distinctly curved forward at apex. The species of this group also share these additional characters: *t3* with submedian *av*, *ad* and *pd* setae; abdomen with large, more or less fused trapezoid spots; frontal triangle narrow; *dc* 2+4, usually only 2 posterior pairs are strong (in *L. glabra* Wiedemann and *L. manicata* Wiedemann *dc* setae should be described as 0+2, but careful examination shows that 4 anterior pairs of minute *dc* setulae are normally present but broken in most specimens). Hennig divided the group into two subgroups.

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Subgroup 1 included the species with ventral seta on *t2* and consisted of *L. longicollis* Meigen, 1826 (S Palaearctic) and *L. cilitarsis* Loew, 1856 (North Africa and Near East). In this paper another three species are added to subgroup 1: *L. microptera* Seguy, 1937 known from Pakistan and India and two Afrotropical species, *L. barbipes* Stein, 1908 and the here described *L. ethiopica* sp. n. The main subgroup character is the presence of fine hairs on the meron above the hind coxa; other characters: *t2* with ventral seta (except for *L. microptera*); male hind basitarsus curved and bears long ventral hairs (except for *L. longicollis*); halves of cercal plate of a subquadrate shape and strongly conjoined with each other (less so in *L. longicollis*); the flies inhabit banks of salted to fresh water.

Hennig's subgroup 2 included widespread *L. assimilis* Wiedemann, 1824 and African *L. nuba* Wiedemann, 1830 which lack the ventral seta on *t2*. In this paper another three Oriental species are added to the subgroup 2: *L. glabra* Wiedemann, 1824, *L. manicata* Wiedemann, 1830 and *L. pacifica* Shinonaga & Pont, 1992. Subgroup 2 is characterized as follows: meron bare; *t2* without ventral seta; male hind basitarsus unmodified; halves of cercal plate of subtriangular shape and less conjoined with each other; the flies inhabit banks of fresh water only.

This revision considers Palaearctic, Afrotropical and Oriental species of the *Lispe longicollis* group. The group is absent in the Nearctic region, there are two Australian species not seen by the author, namely *Lispe weschei* Malloch, 1922 and *Lispe xenochaeta* Malloch, 1923, which also belong to the same group.

Material and methods

The majority of the specimens studied are deposited in the Zoological Museum of Lomonosov Moscow State University, Moscow, Russia, in this case not indicated in text. Other collections are abbreviated as follows:

BMNH Natural History Museum, London, UK;
TAUI Tel-Aviv University, Israel;
ZIN Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia;
ZMHU Museum für Naturkunde, Humboldt-Universität zu Berlin, Berlin, Germany.

The names of the collectors are abbreviated as follows: KT – Konstantin Tomkovich, NV – Nikita Vikhrev.

The following abbreviations for morphological structures are used: *f1*, *t1*, *f2*, *t2*, *f3*, *t3* = fore-, mid-, hind- femur or tibia; *ac* = acrostichal setae; *dc* = dorsocentral setae; *a*, *p*, *d*, *v* = anterior, posterior, dorsal, ventral seta(e); *prst* – presutural, *post* - postsutural.

The abbreviation for the tarsi as *tar* followed by a pair of digits separated by a hyphen was proposed by Vikhrev (2011): the first digit (1 to 3) gives the leg number and the second digit (1 to 5) the number of the tarsal segment. For example, *tar1-4* = 4th segment of fore tarsus; *tar3-1* = hind basitarsus.

Geographical coordinates are given in the Decimal Degrees format.

Synonymies are listed only for the species to which the new synonymies are considered, for full lists of synonymies see the regional Diptera Catalogues: Pont 1977, 1980 and 1986.

Identification key to Eurasian and African species of *Lispe longicollis*-group

1 Meron bare; *t2* with only 1 *pd* seta, without ventral seta. ♂: hind basitarsus not modified as below. Subgroup 2 ..... **2**

– Meron setulose above hind coxa. *t2* with ventral seta (exception *L. micropteta*). ♂: hind basi-tarsus modified: curved and with long ventral hairs (exception *L. longicollis*). Subgroup 1 ..... **6**

2 Disc of scutum densely brownish-grey dusted; *dc* 2+4, two last prescutellar pairs strong, others at least clearly distinct; presutural intraalar seta present; medium size species, body length 6–7.5mm **3**

– Disc of scutum mostly subshining, with a pair of thinly dusted submedian vittae only; *dc* 0+2, only last pair strong; presutural intraalar setae absent; large species, body length 8–9.5mm **5**

3 ♂: *f2* with setae on *av* to *pv* surfaces long and dense, the longest setae about twice as long as femur width. ♀: either *f2* in basal part with erect, rather dense setulae on *av* to *pv* surfaces, these setae at base almost equal to femoral width (*L. pacifica*) or *f1* ventrally with 2–3 rows of fine setulae (*L. nuba*) **4**

– ♂: *f2* without *av*-setae and with only short *pv*-setulae which even in basal part about half as long as femur width. ♀: *f2* with only short and sparse setulae; *f1* bare on ventral surface apart from usual row of *av* setae. Africa, Palearctic and Oriental regions, Australia ..... ***assimilis* Wiedemann**

4 ♂: *f1* ventrally with a dense brush of setulae placed in about 5 rows in basal half of femur and in 1–2 rows in apical half, the usual *av* row of setae on *f1* reduced to 1(2) setae at apex. *f2* with ventral setae long in basal 1/3 (2 times as long as femur width), ventral setae in median 1/3 much shorter, only as long as femur width. ♀: *f1* ventrally with 2-3 rows of fine setulae. Africa..... ..... ***nuba* Wiedemann**

– ♂: *f1* ventrally without setulae; a complete *av* row on *f1* present, though consists of fine setae. *f2* with ventral setae of equal length in basal 2/3 of femur, about 1.5–2 times as long as femur width. ♀: *f1* bare on ventral surface apart from usual row of *av* setae. East Asia..... ***pacifica* Shinonaga & Pont**

5 Palpi darkened at apex. Parafacials with usual sparse fine hairs. *f3* with submedian *av* seta long (equal to femur width) and placed beyond middle Abdominal dusted median vitta complete, although vague on anterior parts of tergites. Hind basitarsus without *v* seta at base. ♂: mid legs and wing venation modified as in Figs 15 and 16; cercal plate as shown in Fig. 11. Oriental region ..... ***glabra* Wiedemann**

– Palpi entirely yellow. Parafacials entirely bare. *f3* with submedian *av* seta short (half as long as femur width) and placed before middle. Abdomen with dusted median stripes conspicuous only on posterior half of tergites. Hind basitarsus with a strong "Anthomyiidae-like" *v* seta at base. ♂: mid tarsi modified as in Fig. 14; wing venation similar to females (Fig. 13); cercal plate as in Fig. 12. South of the Oriental region ..... ***manicata* Wiedemann**

6 *t2* without *av* seta (*L. microptera* – 1 *pd*; ♂ *L. barbipes* – 1 *v-pv*; ♀ *L. barbipes* – 1 *pd*, 1 *v-pv*) 7

– *t2* with 1 *p*(*pd*) and 1 *av* setae **8**

7 *t2* with 1 *p*(*pd*) seta. ♂ (Fig. 3): *f3* with 4–5 fine long *pv* in basal half and 1(2) *av* in basal 1/3; *tar3-1* slightly laterally compressed and outward curved, with waved ventral setulae more dense at base and at apex; *tar3-2* with waved *v* setulae; cercal plate as in Fig. 8. ♀: *f3* on *av* surface usually with a short *av* seta before middle (in some specimens this seta absent). Pakistan, India ..... ***microptera* Seguy**

– *t2* with 1 *v*(*pvv*) seta. ♂ (Fig. 1): *f2* with 2-3 strong, straight and long ventral spines; *f3* in basal 1/3 with 1-2 *av* and 1 long fine *pv*; *t3* at apical 1/3 with long waved setae on *ad* to *av* surface; *tar3-1* elongated, downward curved; with waved *v* setulae. ♀: *f3* without *av* seta; *t2* with 1 *v-pv* and 1 *pd* approximated setae. Africa ..... ***barbipes* Stein**

8 *f3* with a strong submedian *av* seta. Meron with 6-8 setulae above hind coxa and 2-4 below posterior spiracle and usually with 1 setula present on katepimeron. ♂: hind tarsus simple; cercal plate as in Fig. 3. South Palaearctic from Central Europe to Transbaikalia ..... ***longicollis* Meigen**

– *f3* without submedian *av*. Meron only with 4-5 setulae above hind coxa. ♂: hind tarsus modified **9**

9 Palpi black. ♂ (Fig. 4): mid tarsus simple; *tar3-1* dorso-ventraly flattened, distinctly wider than width of *t3*; cercal plate - Fig. 5, sternite 5 – Fig. 6. Ethiopia ..... ***ethiopica* sp. n.**

– Palpi yellow. ♂ (Fig. 2): mid tarsus with a row of curled setulae on *p* surface; *tar3-1* not widened, less wide than width of *t3*; cercal plate as in Fig. 7. Near East, N Africa ..... ***cilitarsis* Loew**

Taxonomy

***Lispe assimilis* Wiedemann, 1824**
http://species-id.net/wiki/Lispe_assimilis
Figs 10, 19

Lispe quadrilineata Macquart, 1835.
Lispe incerta Malloch, 1925.
Lispe inexpectata Canzoneri & Meneghini, 1966.

Lispe cyrtoneurina Stein, 1900: 393 syn. nov. Type locality: Papua New Guinea, Dilo.
Lispe modesta Stein, 1913: 557 syn. nov. Type locality: Abyssinia, Dambelsee [= Ethiopia, Ziway Lake].

Material examined. Syntype *Lispe modesta* Stein, 1913 ♂, (ZMHU). [**Ethiopia**] Abyssinia, Lac. Dembel [Ziway Lake], I.1912, Kovacs.

Australia,: ***Qld.***, Townsville, 19.29°S, 146.80°E, 17.IV.2012, G.Cocks, 1♀.

Ethiopia: ***Amhara***, Tana Lake env., 1800m asl, 11.54°N, 37.39°E, 2–4.VIII.2012, NV, 3♂♂, 1♀; ***Oromia***, Ziway Lake, 7.91°N, 38.73°E, 12.III.2012, NV, 1♂, 1♀.

India: ***Goa*** state, 15.0°N 74.1°E, 3–16.II.2008, KT, 29♂♂♀♀; ***Rajasthan*** state, Jaipur, 26.96°N, 75.85°E, 22.II.2011, NV, 7♂♂, 11♀♀; ***Uttarakhand*** state, 30.1°N, 78.2°E, 4.IX.2011, NV, 1♀.

Israel, Kinneret Lake env., 27.X.2011, NV, 7♂♂, 2♀♀.

[**Italy**], ***Sicilia***, Partinico L., 12.VIII.1978, S.Canzoneri, 1♀, (labeled *L. inexpectata*) (ZMHU).

Myanmar, ***Shan*** state, Inle Lake, 30.XI.2009, NV, 6♂♂, 2♀♀.

Morocco: ***Essaouira*** prov., Essaouira env., 27.III.2009, NV, 1♂, 3♀♀, 1–5.V.2012, NV, 1♂, 2♀♀; ***Marrakech*** prov., Marrakech, 21.III.2009, NV, 1♂, ***Tat-Tan*** prov, Draa R., 11.V.2012, NV, 1♀.

Nigeria, Zungeru (9.81°N 6.16°E), 25.II.1911, J.Macfei, 1♀ (BMNH).

Sudan, 08.III.1929, 1♂ with Emden's identification label *L. modesta* (BMNH).

Thailand: ***Chiang Mai*** prov., Sop Poeng env., 17.XI.2009, NV, 1♂; ***Mae Hong Son*** prov., Pai env., 19.4°N, 98.4°E, 15–25.XI.2010, NV, 14♂♂.

Turkey: ***Adana*** prov., Yumurtalik env., IV.2010, NV, 1♂, 1♀; ***Antalya*** prov., Manavgat env., IX.2006–9, NV, 16♂♂, 10♀♀; ***Hatay*** prov., Samandag env., IV.2010, NV, 3♂♂, 1♀; ***Mersin*** prov., Silifke env., IV.2010, NV, 1♂, 1♀; ***Sakarya*** prov., Karasu env., V.2009, NV, 1♂; ***Zonguldak*** prov., Alapli env., V.2009, NV, 1♂.

Distribution. S Palaearctic, Afrotropical and Oriental regions, Australia, Oceania.

Synonymies. The taxonomy of *L. assimilis* was considered by Shinonaga and Pont (1992). In that paper the synonymy of *L. quadrilineata*, *L. incerta* and *L. inexpectata* with *L. assimilis* was established and the related Oriental species with long ventral hairs on mid femur was described as *Lispe pacifica* Shinonaga & Pont, 1992, it was shown that *L. assimilis* in the sense of old authors is *L. pacifica*, while later authors followed this misinterpretation.

Lispe cyrtoneurina Stein, 1900 – syn. nov. of *L. assimilis*. Stein's (1900) original description completely fits *L. assimilis*, the only difference found is 3 (instead of 4) *post dc*. The male lectotype of *L. cyrtoneurina* (stored in Genoa, Museo Civico di Storia Naturale di Genova) was reexamined by Adrian Pont. The lectotype is in poor condition, damped and mostly squashed; 4 *post dc*; everything else fit *L. assimilis* (Pont, pers. com. and unpublished notes).

Lispe modesta Stein, 1913 – syn. nov. of *L. assimilis*. The very short Stein's (1913) description fits *L. assimilis*. Examined by me specimens from Asia and Africa were found similar, the specimens from Ziway Lake in Ethiopia are especially interesting

as it is the type locality of *L. modesta*. In a later paper (Stein, 1918: 175) Stein himself listed *L. assimilis* from Rangoon (Yangoon, Myanmar) as "*Lispe assimilis* Wied. var. *modesta* Stein" and wrote that the male of *L. assimilis* var. *modesta* (=*L. assimilis* in the present interpretation) differs from *L. assimilis* (=*L. pacifica* in the present interpretation) only by the absence of long ventral hairs on *f2*.

Lispe pacifica Shinonaga & Pont, 1992. According to the remark cited above Stein in 1918 started to regard *L. assimilis* and *L. pacifica* as variations of the same species. In fact, the separation of these species in female sex is sometimes doubtful and males have similar genitalia. Note also that in both species the pollinosity is very variable: dusting on face, parafacialia and parafrontalia from pure white to deep yellow, dusting on parafrontalia and frontal triangle from weak to strong, dusting of scutum from grey to brown, the colour of the tibiae from almost entirely yellow to almost entirely dark. I would like to report that my observations made around Pai (Thailand, Mae Hong Son province) somewhat support the valid taxonomic status of *Lispe pacifica* Shinonaga & Pont, 1992. Pai town is so far the only locality I know where both species *L. assimilis* and *L. pacifica* were found together at the same time and usually at the same pools. A series of 17 males of *L. pacifica* and 14 males of *L. assimilis* were collected. All examined males have distinct characters either of one or other species, with no intermediate specimens recorded. Thus in a sympatric condition no trace of crossbreeding between the two species has been found.

So, *Lispe assimilis* Wiedemann, 1824 = *Lispe cyrtoneurina* Stein, 1900 syn. nov. = *Lispe modesta* Stein, 1913, syn. nov.

Lispe barbipes Stein, 1908

http://species-id.net/wiki/Lispe_barbipes

Fig. 1

Material examined. Syntypes 1♂, 1♀ (ZMHU). S. W. Afrika, Luderitzbucht [**Namibia**, Luderitz, 26.65°S, 15.16°E], S. Schultze 1♂; S. W. Afrika, Kalahari, Moocane, Wasserspiegel [**Botswana**, Mookane, 23.7°S 26.6°E, water level], X.1904, S. Schultze 1♀.

As it was reported by Pont and Werner (2006): "there must be some doubt as to whether this is actually a syntype, since the locality [of ♂ syntype] was not mentioned by Stein (1908) and is on the coast of Namibia rather than at the eastern edge of the Kalahari desert in Botswana."

Ethiopia, ***Afar***, Mille env., 530m asl, 11.381°N, 40.731°E, 9.VIII.2012, NV, 1♀.

South Africa, [***Northern Cape*** prov.], Olifantshoek [≈27.94°S, 22.74°E], 26.II.1988, D.Simon, 2 ♂♂ (TAUI).

[**Namibia**], South Africa, Van Zylserus [***Kunene*** reg., Van Zyls pass, 17.64°S, 12.71°E, 1000m asl], 12.I.1988, D.Simon, 3 ♂♂ (TAUI and ZMUM).

Distribution. Afrotropical: Botswana, Ethiopia, Namibia, South Africa.

Redescription. Male. Body size – 7-8 mm. Head with frontal triangle narrow. Parafacial covered with hairs. Antenna black. Arista in basal half with hairs slightly

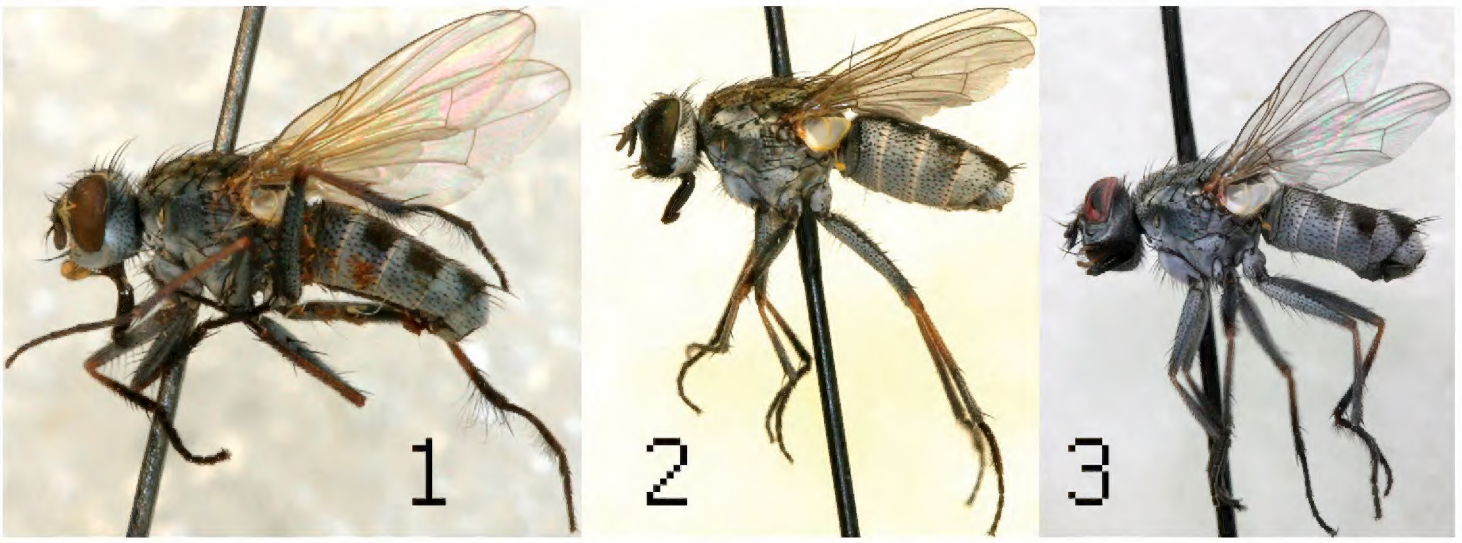

Figure 1–3. ♂♂ *L. barbipes* Stein (**1**) *L. cilitarsis* Loew (**2**) *L. microptera* Séguy (**3**).

shorter than antenna width, in apical half bare. Palpus yellow. Scutum and scutellum brownish dusted with indistinct vittae, pleura brownish-grey dusted. *dc* 2+4 (strong-strong+medium-medium-strong-strong); intraalars 1+2; supraalars 1+2, the posterior one weak. Meron with setulae above hind coxa. Wing with vein R4+5 distinctly curved forward. Legs dark, but femora at apex and tibiae in basal half yellow. *f1* with a row of 6-7 strong *av* setae in apical 3/5. *t1* with a row of 7-8 short but strong *d* setae and with submedian *p* seta. *f2* with 2(3) strong, straight and long (2 times as long as femur width) ventral spines; other setae: 1(2) median *a* seta(e), 2 *p* at apex. *t2* with 1 submedian *v* seta (which is slightly shifted from true *v* position onto posterior surface and may be named "*pvv* seta"). *f3* curved; with 1-2 *av* setae and 1 long but fine *pv* in basal 1/3, *pv* preapical present, *av* preapical absent. *t3* with submedian 1 *av*, 1 *ad* and 1 *pd* setae; below middle with a row of 3-4 straight *ad*; at apical 1/3 with long waved setae on *ad* to *av* surface. Hind tarsus modified: *tar3-1* elongated, downward curved; with waved ventral setulae, these in apical 1/3 especially long; *tar3-2* thickened. Abdomen grey dusted with large lateral black spots, these on tergites 3 and 4 separated by grey vitta, on tergite 5 fused.

Females differs from male as follows: spines on *f2* absent; *t2* with 2 approximated submedian setae, shorter *p-pd* and longer *v-pv*, *f3* without *av* and *pv* setae (these characters did not mention in Stein's (1908) original description), *t3* without long setae at apex; hind tarsus unmodified.

Lispe cilitarsis Loew, 1856

http://species-id.net/wiki/Lispe_cilitarsis

Figs 2, 7

Material examined. Syntype ♂, ZMHU, also seen by Hennig (1960: 426), [**Egypt**] Assyud [Asyut], Frauenfeld, 1♂.

Egypt: Sinai, 21.V.1981, A.Freidberg, 1♂ (TAUI); Cairo, 2♂♂, 1♀ (ZIN); Cairo, Port Said, Suez, Luxor, Aswan, 12♂♂, 6♀♀ (ZMHU).

Ethiopia: ***Amhara***, Tana Lake env., 1800m asl, 11.54°N, 37.39°E, 2-4.VIII.2012, NV, 2♂♂; ***Oromia***, Ziway L., 1640m asl, 7.91°N, 38.73°E, 11–13.III.2012, NV, 1♂.

Israel: Ma'agan Michael, 28.VII.1964, A.Valdenberg, 19♂♂, 20♀♀ (TAUI); Eilat env., 24.X.2011, NV, 10♂♂, 9♀♀.

Morocco: ***Tan-Tan*** prov., Draa R., 28.528°N, 10.947°W, 11.V.2012, NV, 1♂, 1♀.

Distribution. Egypt, Ethiopia, Israel, Morocco. Also reliably known from Saudi Arabia and Oman (Pont 1991). In Ethiopia *L. cilitarsis* seems uncommon and restricted to northern regions in comparison with resembling *L. ethiopica* sp. nov., so specimens from Africa should be re-examined and so far I regard other Afrotropical records as doubtful.

Lispe ethiopica Vikhrev, sp. n.

urn:lsid:zoobank.org:act:8412D7E2-3B7E-4527-A0F2-6B3DACBEB089
http://species-id.net/wiki/Lispe_ethiopica
Figs 4, 5, 6

Holotype: male, Ethiopia, Oromia, Langano Lake, 1590m asl, 7.646°N, 38.706°E, 13-15.III.2012, NV (ZMUM).

Paratypes 23♂♂, 24♀♀. **Ethiopia:** Dire Dawa, Afrika, Diredaua [= Ethiopia, Dire Dawa, 9.60°N, 41.85°E], 28.X.[1945–55], O.Theodor, 1♂(TAUI); ***Oromia***: Mojo bridge, 8.597°N, 39.111°E, 21.IX.2003, A.Freidberg, 1♂ (TAUI); Langano Lake, 1590m asl, 7.646°N, 38.706°E, 13–15.III.2012, NV, 9♂♂, 12♀♀; Ziway Lake, 1640m asl, 7.91°N, 38.73°E, 11–13.III.2012, NV, 11♂♂, 12♀♀; Abijata Lake, 1580m asl, 7.61°N, 38.65°E, 14.III.2012, NV, 1♂.

Description. Male, body length 6.5–7.5 mm.

Head. Frontal triangle remarkably narrow, brownish in posterior half, yellowish-grey dusted in anterior half. Interfrontalia blackish-brown. Fronto-orbital plate blakish-brown in posterior third, yellowish-grey dusted anteriorly; with 3-5 inclinate and 2 proclinate setae and dense hairs in outer row. Parafacial and cheek whitish dusted, occiput grey, parafacial with a row of hairs. Antenna black, postpedicel short, only 2 times longer than pedicel. Arista with hairs half as long as antenna width. Vibrissae medium strong. Palpi blackish.

Thorax. Pleura densely grey dusted, scutellum and disc of scutum brown, thinly dusted, with a pair of densely dusted prescutellar ochrous spots; vittae indistinct. Presutural *ac* in 4 irregular rows; *dc* 2+4, four anterior pair medium strong, two posterior pairs strong; intraalars 1+2; supraalars 1+2; katepisternals 1+2; anepimeron with 11-13 setulae; meron with 3-5 setulae above hind coxa. Wings hyaline, slightly brownish, vein M distinctly curved forward at apex, calypters white, halter yellow.

Legs black with grey dusting, but knees and base of tibiae yellowish. *f1* with a row of *pd* setae and a row of *pv* setulae; *t1* with submedian *p* seta. *f2* with *a* seta at middle and 2 *pd* preapicals; *t2* with *p* seta at middle and *av* seta in apical third; mid tarsus simple. *f3* with 1-2 fine *v* setulae at base, at apex with 1 short *av* and 1 short *pv*; *t3*

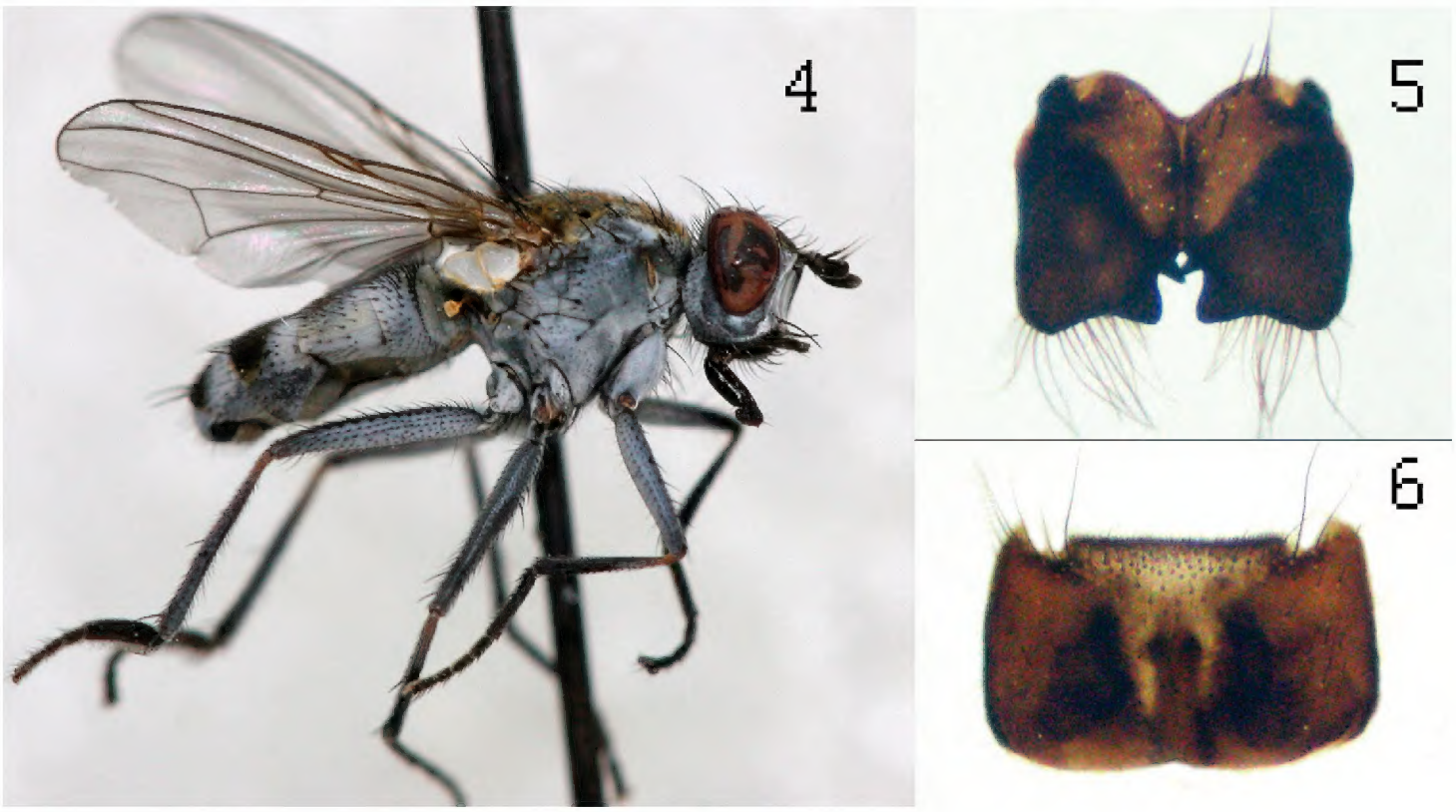

Figure 4–6. *L. ethiopica* sp.n.: male Holotype (**4**) cercal plate (**5**) sternite 5 (**6**).

with submedian *ad* and *pd* setae and with long fine *av* at apical third, setulae in the *ad* row elongated. Hind tarsus modified: *tar3-1* dorso-ventrally flattened, distinctly wider than width of *t3*, on *av* surface with a dense row of fine curled setulae.

Abdomen with dense whitish dusting; tergites 3 to 5 with a pair of large black fused spots each. Cercal plate and sternite 5 as in Figs 5 and 6.

Female differs from male as follows: body length 7-8 mm; *t3* with *av* seta strong; hind tarsus simple.

Diagnosis. *Lispe ethiopica* sp.n. is related to *L. cilitarsis* Loew, 1856 and probably was overlooked due to that resemblance. These two species may be reliably distinguished in both sexes as recommended in the identification key above.

Etymology. Named after the locality of the type series.

Lispe glabra Wiedemann, 1824

http://species-id.net/wiki/Lispe_glabra

Figs 11, 15, 16

Material examined. India, ***Goa*** state, 15.0°N, 74.1°E, 3–16.II.2008, KT, 3♂, 7♀♀.

Myanmar, ***Shan*** state, Inle L., 30.XI.2009, NV, 3♀♀.

Thailand: ***Chanthaburi*** prov., Khao Khitchakut env., 12.82°N, 102.13°E, XI.2009, NV, 3♀♀; ***Chonburi*** prov., Pattaya env., XII.2008–9, NV, 40 ♂♂, ♀♀; ***Mae Hong Son*** prov., Pai env., 11.XI.2009, NV, 5♀♀; ***Phuket*** prov., Nai Thon beach, 20.II.2009. NV 3♂♂, 4♀♀, NV; ***Phang Nga*** prov., Thai Mueang env., 18.II.2009, NV, 1♂, 6♀♀; ***Rayong*** prov., Ban Phe env., 12.64°N, 101.46°E, NV, 3♀♀.

Distribution. Oriental region.

Figure 7–9. Cercal plates: *L. cilitarsis* Loew (**7**) *L. microptera* Séguy (**8**) and *L. longicollis* Meigen (**9**).

Descriptive notes. Body length 8.5–9.5 mm. Wings slightly brownish infuscated. Vein *M* gradually curved forward from level of crossvein *dm-cu*, cell *r*4+5 is almost closed and distance between veins M and R4+5 at wing margin is shorter than crossvein *rm*. Vein CuA2 not reaching wing margin, extending only to crossvein *dm-cu*; crossvein *dm-cu* skewed, it reaches vein *M* at acute angle of about 45°. There is a downcurved fold surrounded by long microtrichia along posterior margin of wing between veins M and A2, microtrichia directed outward to the fold. Mid legs: *f*2 with remarkable row of very dense curled Velcro fastener-like setae in *pv* position in basal 2/3; *t*2 in apical 1/4 with a row of long ventral hairs; *tar2-1* with a complete row of long curved *pv* setulae. Male is unmistakable due to modified wings and mid legs. Female differs from female of *L. manicata* as given in the key.

Lispe longicollis Meigen 1826

http://species-id.net/wiki/Lispe_longicollis

Fig. 9

Material examined. [**Iran**], Sistan [***Sistan and Baluchestan*** prov., ≈27°N, 61°E], 19–21.V.1898, Zarudniy, 2♂♂ (ZMHU).

Hungary, Kalocsa, [46.5°N 19.0°E] , Thalhammer, 2♀♀ (ZMHU).

Kazakhstan: ***Atyrau*** reg., Atyrau env., 47.0N, 51.8E, 21.V.2011, KT, 21♂♂, 17♀♀; ***Kyzylorda*** prov., Syr Darya R., KT, 26 ♂♂, ♀♀, ***W. Kazakhstan*** reg., Uralsk env., 51.07°N, 51.05°E, 26.VIII.2012, KT, 6♂♂, 7♀♀.

Russia: ***Astrakhan*** reg., Baskunchak L., 48.19°N, 46.82°E, 2–4.V.2010, KT, 7♂♂, 2♀♀; ***Gorno-Altay*** reg., Ust-Koksa env., 50.26°N, 85.61°E, 25.VI.2007, O.Kosterin, 1♀; ***Kalmykia*** reg., 47.875°N, 44.601°E, 08.VI.2012, NV, 3♂♂, 1♀; ***Khakassia*** reg., Shira env. 54.422°N, 90.147°E, 26.VI.2011, KT, 2♀♀; ***Krasnodar*** reg., Pshada R., 44.39°N, 38.34°E, 6.IX.2009, KT, 6♂♂, 3♀♀; ***Omsk*** reg., Omsk, 54.97°N, 73.36°E, 15.VI.2011, O.Kosterin, 1♀; ***Orenburg*** reg., Sol-Iletsk env., 51.342°N, 55.013°E, 28.VIII. KT, 7♂♂, 7♀♀; ***Saratov*** reg., Saratov env., 51.60°N, 46.35°E, 24.VIII.2012, KT, 1♂, 4♀♀; ***Stavropol*** reg.,saltish pond, 45.245°N, 42.665°E, 09.VI.2012, NV, 4♂♂, 2♀♀; ***Volgograd*** reg., 50.418°N,

Figure 10–12. Cercal plates: *L. assimilis* (**10**) *L. glabra* Wiedemann (**11**) and *L. manicata* Wiedemann (**12**).

42.760°E, 7.VI.2012, NV, 1♂, Sarpa L., 48.35°N, 44.61°E, 7.VI.2012, NV, 3♂♂, 2♀♀; ***Zabaykalsky*** reg., Zun-Torey soda Lake, 50.01°N, 115.72°E, 30.VII.2011, A.Medvedev, 1♂.

[**Slovenia**], Illyria, Gorz [Gorica, ≈ 45.9°N 13.7°E], IX.67, Mik, 1♂ (ZMHU).

Tajikistan, ***Khatlon*** prov.; Jilikul env. (37.5°N, 68.5°E), 16.V.1987, M.Krivosheina, 2♂♂, 2♀♀; **Turkey:** ***Antalya*** prov., Manavgat env., 36.76°N, 31.45°E, X.2006–7, NV, 1♂, 2♀♀; ***Hatay*** prov., Samandag env., 36.07°N, 35.96°E, 16.IV.2010, NV, 1♂; ***Kayseri*** prov., Subashi env., 38.51°N, 35.19°E , 19.IV.2010, NV, 1♀; ***Konya*** prov., Beyshehir Lake, 37.79°N, 31.64°E, 11.IX.2009, NV, 18 ♂♂, ♀♀; ***Mersin*** prov., Silifke env., 36.31°N, 34.02°E, 22.IV.2010, NV, 2♂♂, 8♀♀.

Turkmenistan: ***Balkan*** prov., Atrek R., (37.7°N, 54.8°E), 28.VII.1932, Ushinsky, 1♀; ***Mary*** prov.; Badhyz NR (35.7°N, 61.8°E), V-VI.1991, A.Ozerov, 1♂, 6♀♀.

Ukraine, ***Donetsk*** reg., Volnovakha distr, 47.51°N, 37.68°E, 25.VIII.2008, KT, 1♂, 2♀♀;

Uzbekistan, ***Karakalpakstan*** reg., Muynak env. (43.76°N, 59.03°E), VI.1957, V.Sychevskaya, 3♂♂, 9♀♀.

Distribution. Southern Palaearctic, from 13°E to 116°E; from 55°N to 35°N.

Lispe manicata **Wiedemann, 1830**

http://species-id.net/wiki/Lispe_manicata

Figs 12, 13, 14

Xenolispa chiragrica Séguy, 1948.

Lispe forficata Kurahashi & Shinonaga, 2009: 303 syn. nov. Type locality: Malaysia, Borneo, Sarawak, Bario [3.75°N, 115.45°E].

Material examined. [**Indonesia**], [***Java***], Batavia, VI.1908, Jacobson, 1♀ (ZMHU).

Cambodia, ***Sianoukville*** prov., Ream Nat. Park, 10. 516°N, 103.617°E, 20.IV.2010, O.Kosterin, 1♂.

Thailand, ***Phuket*** prov., 08.043°N, 98.277°E, 21–26.II.2009, NV, 3♂♂, 2♀♀.

Distribution. South-East Asia: Cambodia, Malaysia (Borneo), Indonesia (Java), Singapore (Séguy 1948), S Thailand, S Vietnam (Séguy 1948).

Figure 13–16. *Lispe manicata* Wiedemann: male (**13**) male mid tarsi (**14**) *L. glabra* Wiedemann: male (**15**) male mid tarsus (**16**), **df** – downcurved fold; **vf** – "velcro fastener- like setae.

Synonymy. The illustrations of wonderfully modified male mid tarsi and characteristic genitalia given by Kurahashi and Shinonaga (2009: fig. 1 c–d, 3 a–d) for *L. forficata* suggest it's conspecifity with *L. manicata*. So, *Lispe manicata* Wiedemann, 1830 = *Lispe forficata* Kurahashi & Shinonaga, 2009, syn. n.

The characters of female of *L. forficata* were shortly mentioned by Kurahashi and Shinonaga (2009), but these authors did not compare *L. forficata* with the most related species *L. glabra* and, in my opinion, the diagnostically important characters were either not mentioned or given erroneously. Therefore I find it necessary to provide the description of the female below.

Description of female. Body length 8.5–9.5 mm.

Head. Interfrontalia matt black; frontal triangle brownish-black, subshining, narrow, reaching to lunula. Upper half of fronto-orbital plates brownish-black, subshining, lower part dirty-golden dusted, 3-4 inclinate, 2 reclinate setae and a dense outer row of setulae. Parafacials densely whitish dusted, entirely bare. Gena whitish dusted, about 1.5 times as wide as postpedicel; occiput grey dusted, but less dusted in upper 1/3. Vibrissae strong. Antennae black, long; arista haired on basal half or slightly more, longest aristal hairs half as long as width of antenna. Palpi entirely yellow.

Thorax. Pleura and dorsolateral area, including postpronotal lobe and notopleuron, densely grey dusted. Disc of scutum mostly subshining brownish-black, with a pair of thinly dusted vittae situated mesad to *dc* rows, disc of scutellum subshiny brownish-black. *ac* hairs in 5-6 irregular rows; *dc* 0+2, only posterior pair strong (hair-like and indistinct posterior *prst dc* and 1-2 pairs anterior *post dc* may be found in some specimens); intraalars 0+1, presutural one absent; supraalars 1+2, the posterior one weak. Katepisternal setae 1+2; anepimeron with 9 (8-10) fine hairs, meron and katepimerom bare. Scutellum bare below at apex. Mesothoracic spiracle yellowish. Wings hyaline, slightly brownish infuscated, vein M distinctly curved forward at apex, calypters whitish, halteres yellow.

Legs. Legs long, densely grey dusted; black including coxae, but knees and basal half of *t2* and *t3* brownish-yellow; *f*1 with a full row of 6 (5-7) *pd* setae and with a row of fine *pv* setulae, but in apical half 2-4 setae in *pv* row are strong (longer than tibial diameter, stronger than setae in *pd* row); *t1* with *p* seta, preapical *d* and apical *pd* and *pv*; *f*2 thickened in basal half, *f*2 with row of 3-5 *a*-setae in basal 1/3 and 2 *pd* at apex; *t*2 with submedian *pd*; *f*3 with short *av* before middle and shorter than setae of *ad* row, with a full row of *ad* subequal to femur depth, preapicals: *av* and *pv*; *t*3 with submedian *av*, *ad* and *pd* setae; hind basitarsus with *av* seta at base.

Abdomen: black with grey pollen. Tergites 1+2 to 5 each with a large blackish spots on dorsal and lateral sides, these spots on tergites 3 and 4 divided at midline by grey dusted interrupted vitta.

Male. Similar to female, but mid tarsi modified: apex of mid basitarsus and 4 apical tarsal segments bright yellow; *tar2-2* and *tar2-3* enlarged, *tar2-4* and *tar2-5* strongly enlarged; apex of *tar2-1* and *tar2-2* with long *pd-p* setae. Cercal plate as shown on Fig. 12.

***Lispe microptera* Séguy, 1937**
http://species-id.net/wiki/Lispe_microptera
Figs 3, 8

Material examined. India: ***Rajasthan*** state: Jaipur, 26.96°N, 75.85°E, 21–22.II.2011, NV, 10♂♂, 7♀♀; Sambhar salt-lake, 26.916°N, 75.190°E, 23.II.2011, NV, 8♂♂.

Distribution. India, Rajasthan and Pakistan, Karachi (type locality).

Description of female. Body length 7–7.5 mm, wing length 6mm.

Frontal triangle narrow, yellowish dusted; interfrontalia brownish-black. Fronto-orbital plate blackish grey dusted, with 4 inclinate and 2 proclinate setae and dense hairs in outer row. Parafacial covered with hairs. Antenna black, postpedicel short. Arista with hairs two times shorter than antenna width, in apical third bare. Palpus narrow, dirty-yellow.

Thorax. Scutum and scutellum brownish dusted with a pair of indistinct vittae, pleura grey dusted.

dc 2+4 (medium - medium + medium/weak-medium/weak-strong-strong). Meron with 3-4 setulae above hind coxa, anepimerom with about 15 setulae. Wing with vein R4+5 distinctly curved forward.

Legs. Femora dark with yellow apex, tibiae yellow in basal half and dark in apical half, tarsi black.

f1 with a complete row of 10-12 *pv* setae. *t1* with submedian *p* seta. *f2* with a row of short *a* setae in basal half and with 2 *pd* at apex. *t2* with 1 submedian *p* seta. *f3* slightly curved; with a short *av* seta at basal 1/3 (absent in some specimens) and short *pv* at apex, *av* preapical absent. *t3* with 1 *ad* and 1 *pd* setae at middle. Hind tarsus unmodified.

Abdomen grey dusted with large dorsal black spots separated by anteriorly interrupted grey vitta.

Male differs from female as follows: body length 6.5-7 mm, wing length 5-5.5 mm; *f2* with a complete row of fine *v* setae about as long as femur width; *f3* in basal half with 4–5 fine long (2–2.5 femur width) *pv* setae and 1(2) *av* in basal 1/3; hind tarsus modified: *tar3-1* slightly laterally compressed and outward curved, with waved ventral setulae more dense at base and at apex; *tar3-2* with waved ventral setulae; male cercal plate as in Fig. 8.

Lispe nuba Wiedemann, 1830

http://species-id.net/wiki/Lispe_nuba

Material examined: Ethiopia: ***Amhara*:** Tana Lake env., 1800m asl, 11.54°N, 37.39°E, 2–4.VIII.2012, NV, 6♂♂, 7♀♀; Hayk L., 1920m asl, 11.325°N, 39.688°E, 06.VIII.2012, NV, 3♂♂, 2♀♀; Karakore env., 1500m asl, 10.375°N, 39.933°E, 08.VIII.2012, NV, 4♂♂, 1♀; ***Oromia*:** Dedre Zeit, Hora L., 1900m asl, 8.757°N, 38.993°E, 10.VII.2012, NV, 3♂♂, 3♀♀.

Egypt: Cairo, 5♂♂, 1♀, with Becker, Kowarz and Hennig determination labels (ZIN).

Israel: Yeruham (30.99°N 34.90°E), 22.VII.1962, J.Kugler, 1♂, 1♀ (TAUI).

Distribution. Africa and Near East.

Remarks. Emden (1941) in the key to African *Lispe* wrote that in *L. nuba* "front tibiae without a *pv*". It is not correct, all examined specimens have *t1* with *pv* seta in both sexes, though short in males.

Lispe pacifica Shinonaga & Pont, 1992

http://species-id.net/wiki/Lispe_pacifica

Figs 17, 18

Material examined. Cambodia, ***Koh Kong*** prov., 11.605°N, 103.046°E, XII.2010, NV, 2♀♀.

[**Taiwan**] Formosa: Takao, [22.6N 120.3E], 7.VII.1907, H.Sauter, 6♂♂, 6♀♀, Anping, [23.0N, 120.2E], IX.1908, H.Sauter, 7♂♂, 5♀♀ (ZMHU).

Thailand: ***Chanthaburi*** prov., Khao Khitchakut env., XI.2009, NV, 1♀; ***Chiang Mai*** prov., Sop Poeng env., XI.2009, NV, 1♂; ***Chonburi*** prov., Pattaya env., XI.2007–XII.2009, NV, 28 ♂♂, ♀♀; ***Mae Hong Son*** prov., Pai env., 19.4°N, 98.4°E, 15–25.XI.2010, NV, 19♂♂; ***Nakhon Ratchasima*** prov., Khao Yai NP; II.2009; NV, 1♂, 1♀; ***Phang Nga*** prov., Khao Lak env., XII.2010, NV, 3♂♂, 1♀; ***Phuket*** prov., Nai Thon beach, II.2009; NV, 4♂♂, 1♀; ***Rayong*** prov., Ban Phe env., XI.2009, NV, 2♂♂, 2♀♀; ***Sa Kaew*** prov., Mueang Sa Kaeo, II.2009; NV, 1♂.

Distribution. Widespread in South-East Asia.

Ecology

As it was mentioned above, the species of the subgroup 1 of the *Lispe longicollis* group may be found both on the freshwater and salted basins. *L. ethiopica* sp.n. was equally common on the freshwater Ziway Lake, on the brackish (2g/l) Langano Lake and on the salt (26g/l) Abijata Lake. *L. microptera* was collected at brackish lakes and ponds around Jaipur and on the hypersaline (70-300g/l depending on the season) Sambhar Lake. *L. longicollis* was collected in spring time on the hypersaline Baskunchak Lake, on the seashore salted marshes in Mersin province of Turkey and on the freshwater Titreyen Lake in Antalya province. *L. cilitarsis* in Israel near Eilat was also found at freshwater of cattle drinking bowl and on a hypersaline lake shore, although in the latter case *L. cilitarsis* avoided the sites covered with dry salt where only *Lispe halophora* Becker, 1903 was still present.

In contrast to this salt-tolerance, the species of the subgroup 2 of the *Lispe longicollis* group were observed on freshwater basins only: river banks, rice fields or freshwater lakes/ponds. All species but one prefer open sites, *L. manicata* seems to be the species of the forest rivers and streams where it was collected in Thailand and Cambodia, the same natural habitat was reported by Kurahashi and Shinonaga (2009) (for *L. forficata*) in Malaysian Borneo.

The species of the *Lispe longicollis* group mostly feed on slow moving living prey like Nematocera larvae (Fig. 17), but also were observed feeding on dead arthropods (Fig. 18) or even successfully hunting on a small Diptera imago like *Paracoenia*, Ephydridae (Fig. 19) or *Syntormon*, Dolichopodidae.

Figure 17–19. Feeding. Thailand, Phuket: male *L. pacifica*: with Chironomidae larva (**17**) and with dead spider (**18**) Turkey, Antalya, female *L. assimilis* with prey - *Paracoenia fumosa* (Ephydridae) (**19**).

Correction

I have to apologize for an unfortunate mistake in my previous paper on *Lispe* taxonomy (Vikhrev 2011, fig. 2): sternite 5 of *Lispe draperi* Séguy, 1933 was attributed to *L. tentaculata* (De Geer, 1776) and vice versa.

Acknowledgements

I thank Adrian Pont (Oxford) for his various help and for the BMNH material, Oleg Kosterin (Novosibirsk) and Dmitry Gavryushin (Moscow) for their corrections of the text, Amnon Freidberg (Tel-Aviv), Joachim Ziegler (Berlin) and Emilia Narchuk (St Petersburg) for the very interesting material from TAUI, ZMHU and ZIN respectively.

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